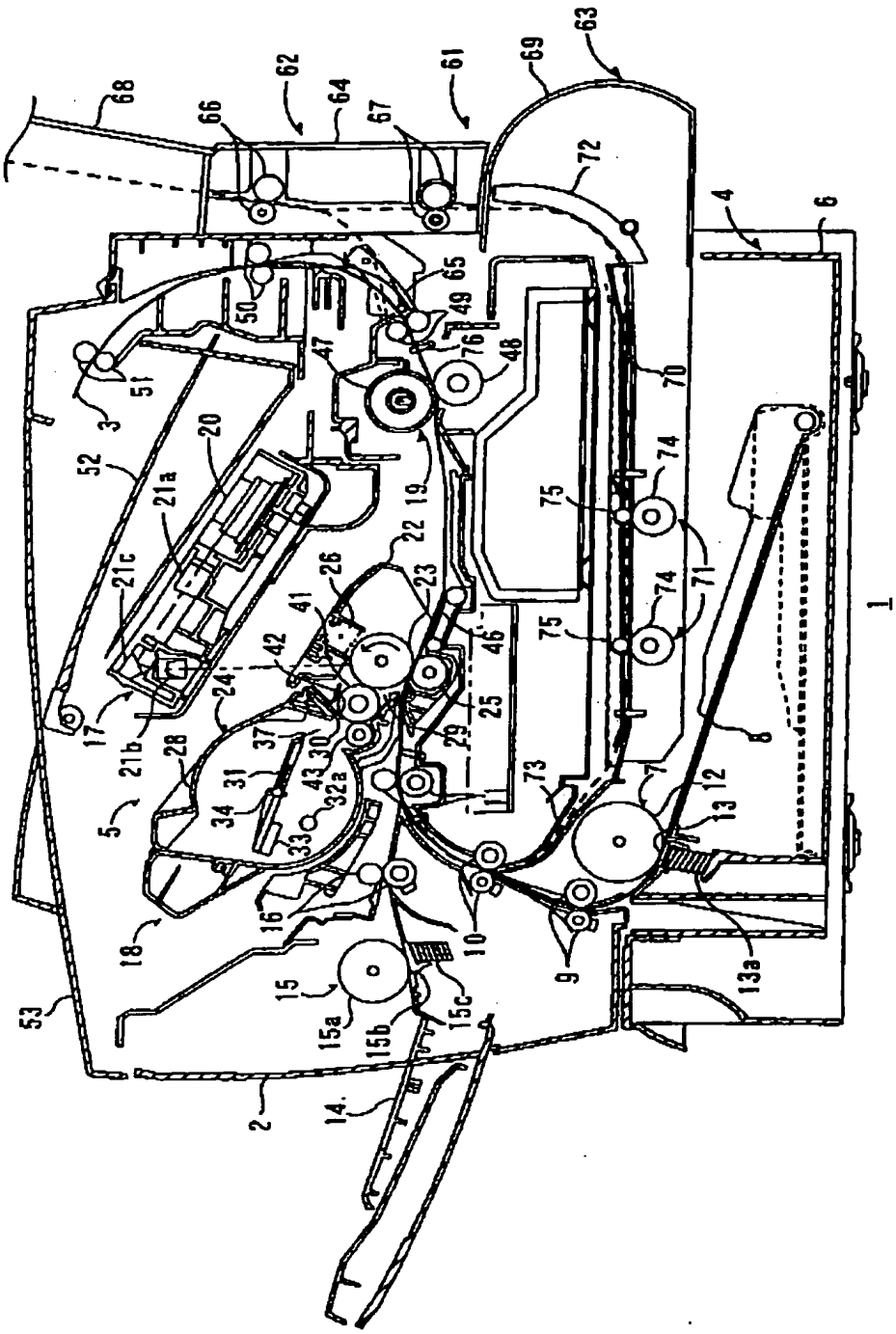
FIG.1


1
2
3
4
5
6
7
8
9
10
12
13
13a
14
15
15a
15b
15c
16
17
18
19
20
21a
21b
21c
22
23
24
25
26
28
29
30
31
32a
33
34
37
41
42
43
46
47
48
49
50
51
52
53
61
62
63
64
65
66
67
68
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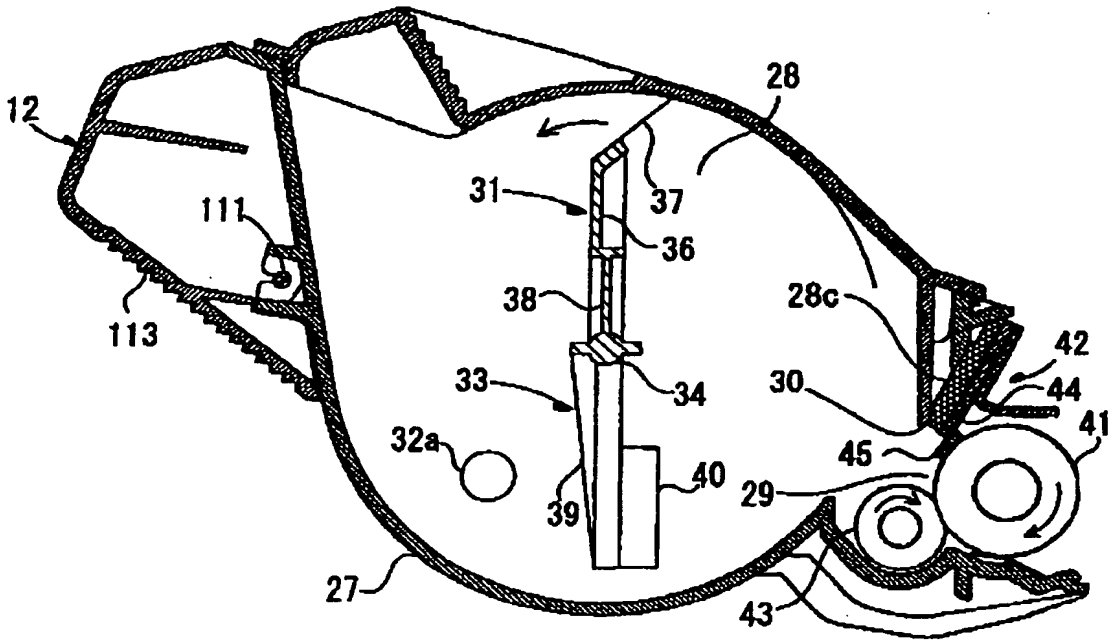
73
74
75
76

FIG.2



24

FIG.3

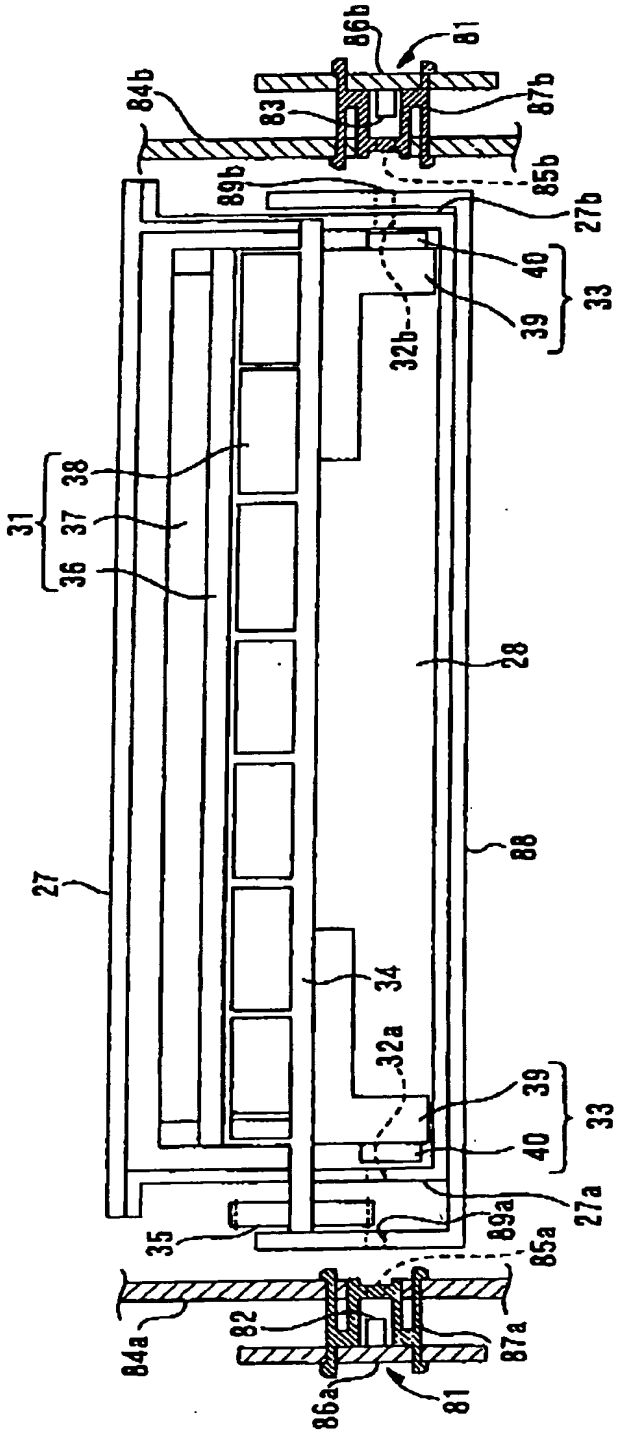

86b
81
84b
83
87b
85b
89b
27b
40
39
33
32b
31
38
37
36
28
88
27
34
32a
39
33
40
27a
89a
35
85a
84a
82
87a
86a
81

FIG.4

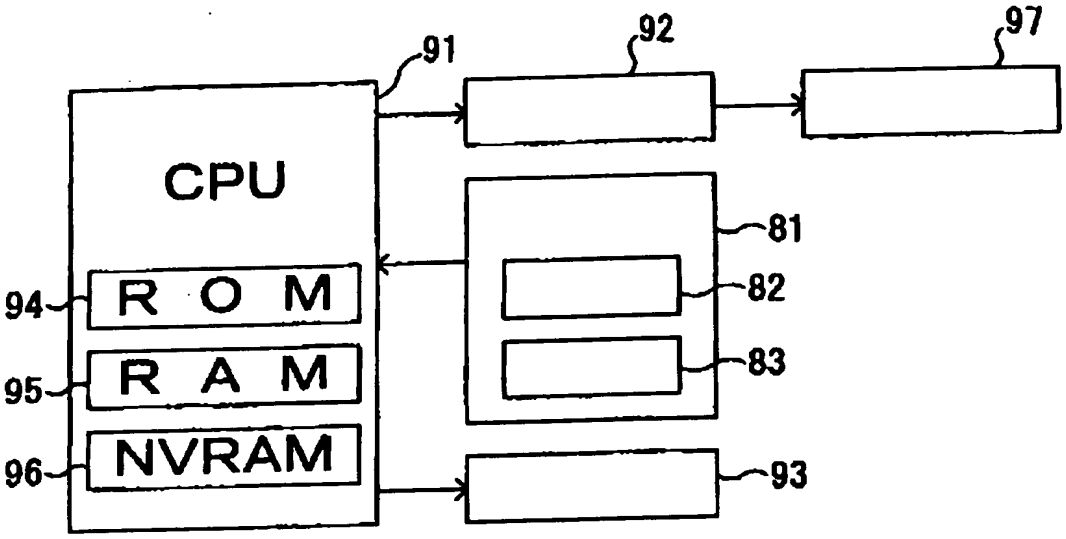

91
92
97
CPU
81
82
83
94
R O M
95
R A M
96
NVRAM
93

FIG.5

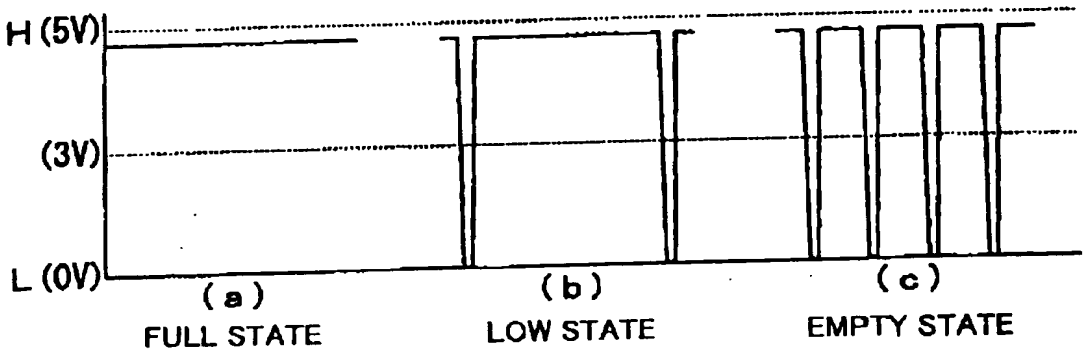

H (5V)
(3V)
L (0V)
(a)
FULL STATE
(b)
LOW STATE
(c)
EMPTY STATE

FIG.6

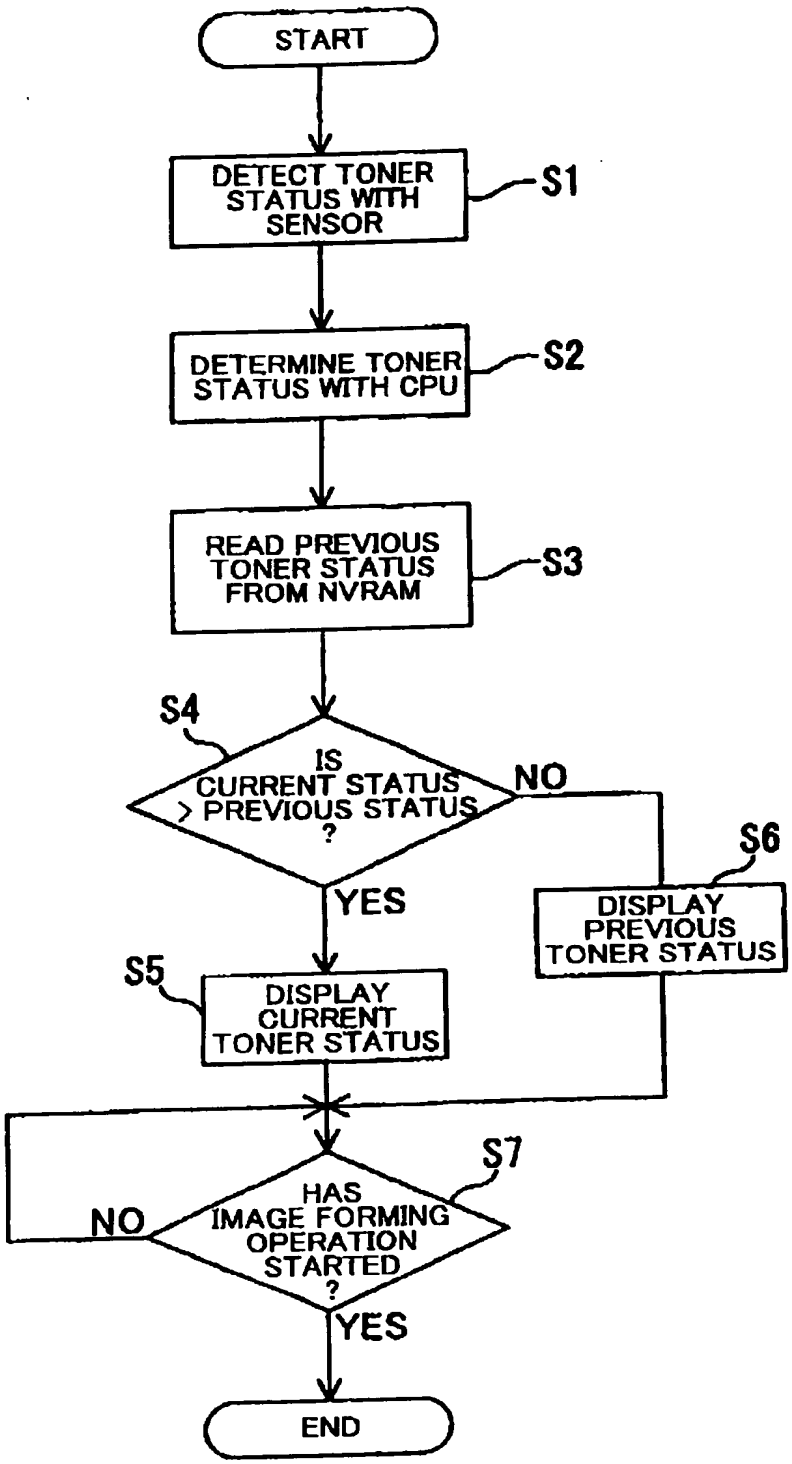

START
DETECT TONER STATUS WITH SENSOR
S1
DETERMINE TONER STATUS WITH CPU
S2
READ PREVIOUS TONER STATUS FROM NVRAM
S3
S4
IS CURRENT STATUS > PREVIOUS STATUS ?
NO
YES
S6
DISPLAY PREVIOUS TONER STATUS
S5
DISPLAY CURRENT TONER STATUS
S7
HAS IMAGE FORMING OPERATION STARTED ?
NO
YES
END

FIG.7

EX.	PREVIOUS STATUS	CURRENT STATUS	DISPLAY STATUS
1	EMPTY	EMPTY	EMPTY
2	EMPTY	LOW	LOW
3	EMPTY	FULL	FULL
4	LOW	EMPTY	LOW
5	LOW	LOW	LOW
6	LOW	FULL	FULL
7	FULL	EMPTY	FULL
8	FULL	LOW	FULL
9	FULL	FULL	FULL

FIG.8

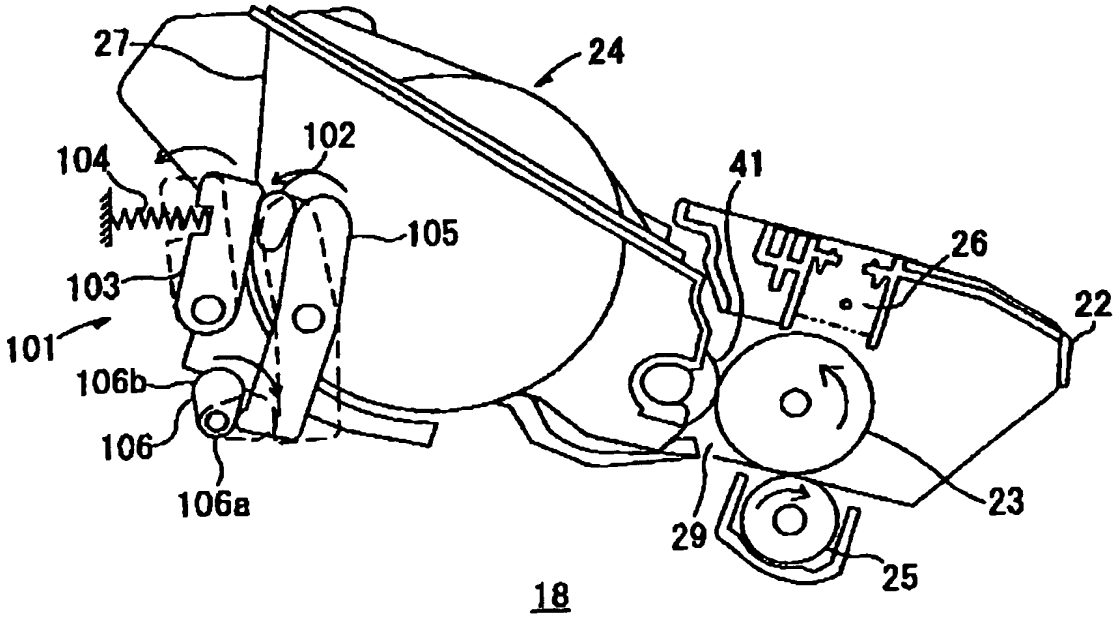


FIG.9

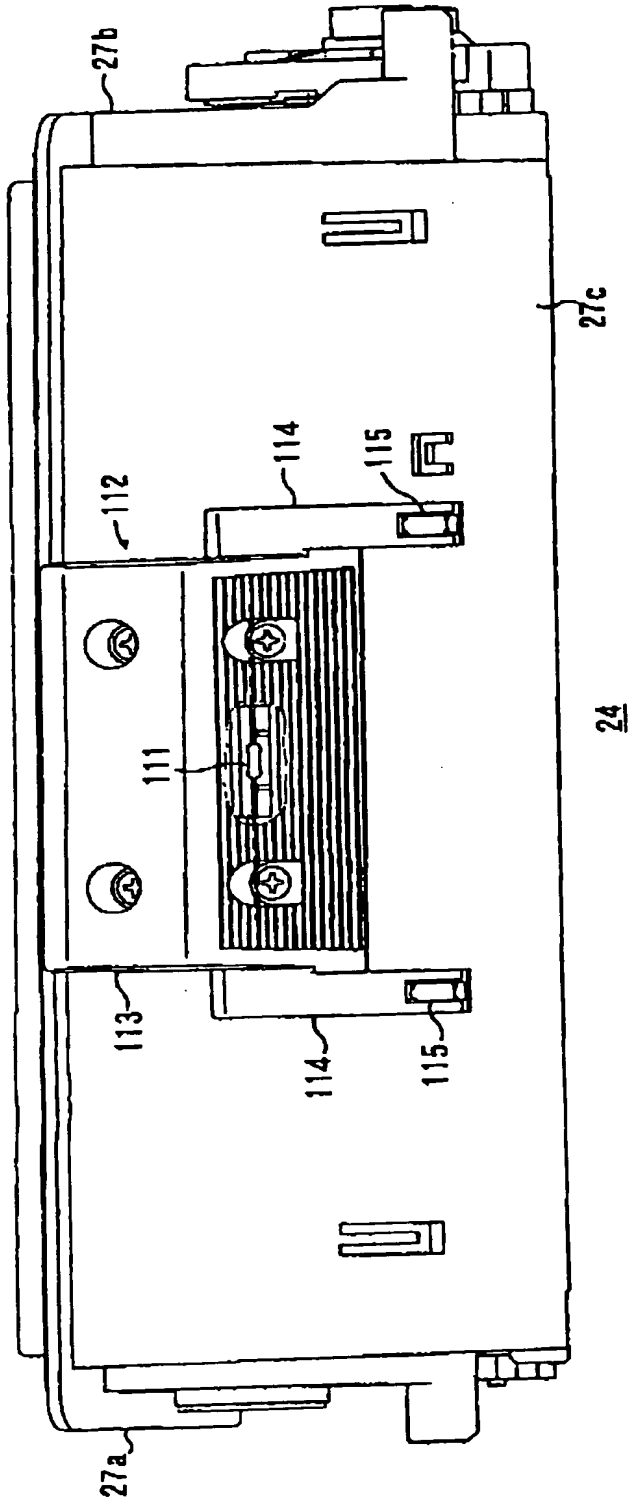


FIG.10

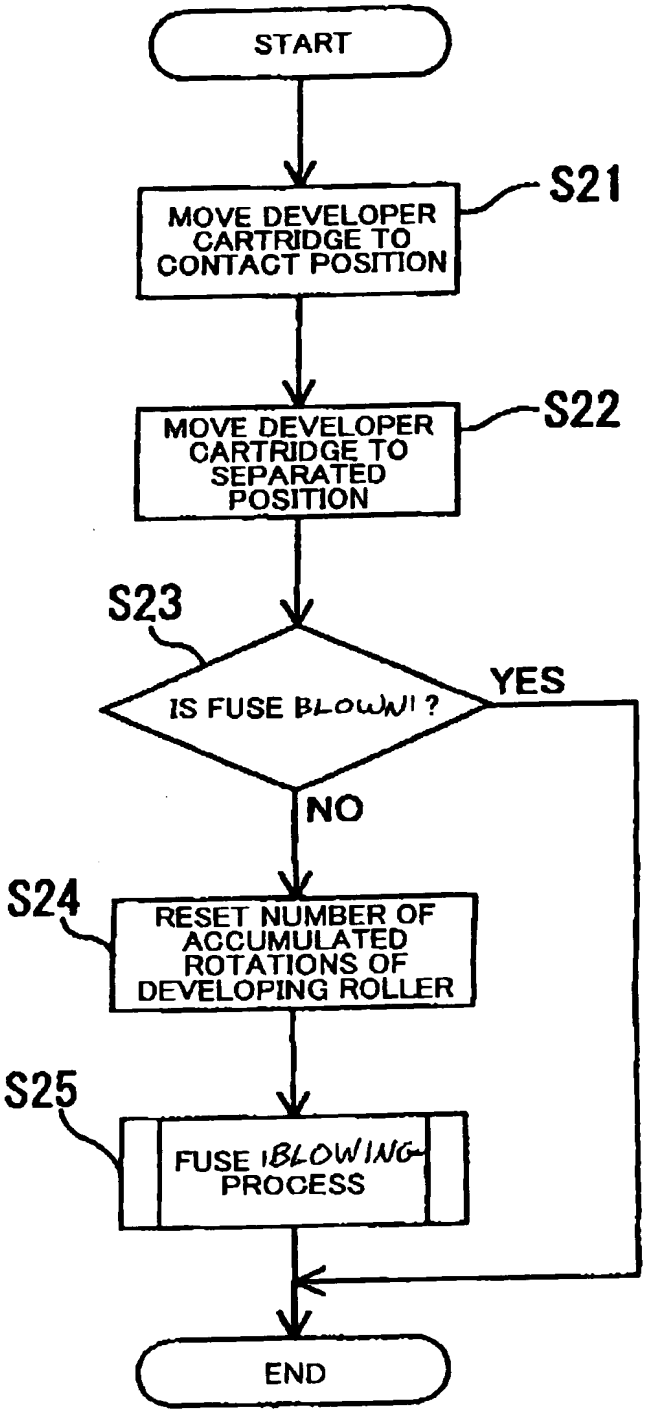
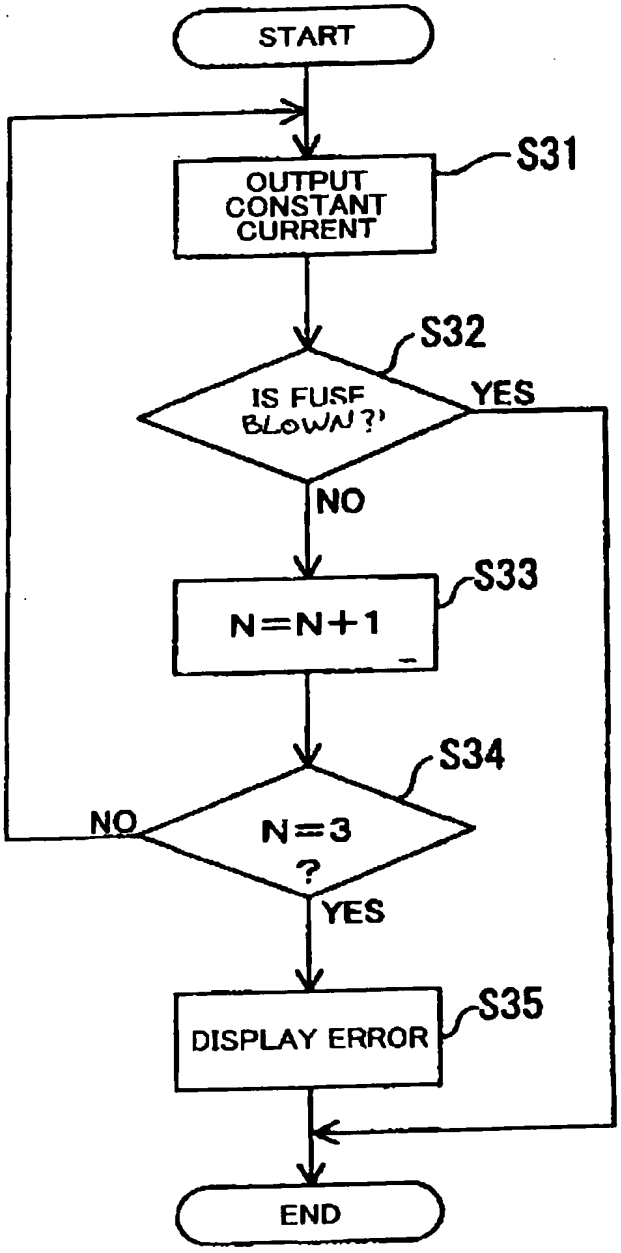

START
MOVE DEVELOPER CARTRIDGE TO CONTACT POSITION
S21
MOVE DEVELOPER CARTRIDGE TO SEPARATED POSITION
S22
S23
IS FUSE BLOWN?
YES
NO
S24
RESET NUMBER OF ACCUMULATED ROTATIONS OF DEVELOPING ROLLER
S25
FUSE BLOWING PROCESS
END

FIG.11


START
S31
OUTPUT CONSTANT CURRENT
S32
IS FUSE BLOWN?
YES
NO
S33
N=N+1
S34
NO
N=3 ?
YES
S35
DISPLAY ERROR
END